

Complete Summary

GUIDELINE TITLE

Recommendations for the endovascular treatment of intracranial aneurysms: a statement for healthcare professionals from the Committee on Cerebrovascular Imaging of the American Heart Association Council on Cardiovascular Radiology.

BIBLIOGRAPHIC SOURCE(S)

Johnston SC, Higashida RT, Barrow DL, Caplan LR, Dion JE, Hademenos G, Hopkins LN, Molyneux A, Rosenwasser RH, Vinuela F, Wilson CB. Recommendations for the endovascular treatment of intracranial aneurysms: a statement for healthcare professionals from the Committee on Cerebrovascular Imaging of the American Heart Association Council on Cardiovascular Radiology. Stroke 2002 Oct; 33(10):2536-44. [102 references] [PubMed](#)

GUIDELINE STATUS

This is the current release of the guideline.

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SCOPE

DISEASE/CONDITION(S)

Intracranial aneurysms

GUIDELINE CATEGORY

Assessment of Therapeutic Effectiveness
 Evaluation
 Treatment

CLINICAL SPECIALTY

Cardiology
Neurological Surgery
Neurology
Radiology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

- To summarize the literature and create recommendations on endovascular therapy of ruptured and unruptured intracranial aneurysms
- To establish recommendations, based on the best available evidence, to define appropriate indications for coil embolization and other endovascular techniques in the context of surgical alternatives

TARGET POPULATION

Patients with ruptured or unruptured intracranial aneurysms

INTERVENTIONS AND PRACTICES CONSIDERED

Management/Treatment

1. Surgical clipping of the aneurysm
2. Endovascular coil embolization

Follow-up Evaluation

1. Catheter angiography
2. Computed tomography angiography
3. Magnetic resonance angiography
4. Skull x-ray

MAJOR OUTCOMES CONSIDERED

- Morbidity and mortality
- Risk of aneurysm rupture after treatment
- Cognitive function
- Disability
- Occlusion rates
- Incidence of compressive symptoms
- Incidence of subarachnoid hemorrhage

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

Review of Published Meta-Analyses

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The American Heart Association formed a special writing group to summarize the literature and create recommendations on endovascular therapy of ruptured and unruptured intracranial aneurysms. This statement is meant to extend previous statements on treatment of subarachnoid hemorrhage and on treatment of unruptured aneurysms. During the review, it became evident that any recommendations would be based primarily on expert opinion weighing evidence only from nonrandomized cohort studies and case series.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

This statement was approved by the American Heart Association Science Advisory and Coordinating Committee in July 2002. It was published in *Stroke* 2002; 33: 2536-2544.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Given the absence of data from randomized trials, all recommendations are based on expert opinion. Endovascular coil embolization is an option for treatment of ruptured and unruptured intracranial aneurysms. Special consideration for coil embolization should be given when surgery is impossible or is high risk. This may include patients with aneurysms in the posterior circulation. Results of a randomized trial are required to define the appropriate role of endovascular coil embolization in the treatment of patients who are candidates for surgery.

Endovascular occlusion of the artery from which an aneurysm arises is a treatment option when an aneurysm cannot be treated directly with surgery or endovascular coil embolization and when that aneurysm is at high risk for subsequent rupture or when neurological symptoms are progressive.

All patients whose aneurysms are treated by coil embolization should have follow-up catheter angiography performed 1 to 6 months after initial treatment. Follow-up imaging should occur sooner in patients with aneurysms that are not completely occluded. Subsequent angiography should be performed in patients whose aneurysms remain incompletely occluded.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

Given the absence of data from randomized trials, all recommendations are based on expert opinion.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate use of surgical clipping and coil embolization in the treatment of ruptured and unruptured intracranial aneurysm

POTENTIAL HARMS

An intracranial aneurysm can be treated by occluding the parent artery—the artery from which it arises. However, occlusion of intracranial arteries may lead to ischemia. The ischemic consequences of parent artery occlusion can be predicted by temporarily inflating a balloon to occlude the vessel and evaluating effects on brain function and hemodynamics. However, ischemic sequelae may still occur even in those who tolerate a test occlusion, even if an extracranial-to-intracranial arterial bypass is performed.

CONTRAINDICATIONS

CONTRAINDICATIONS

Contraindications to radiographic contrast, such as known allergy or renal failure

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

The current literature on endovascular therapy consists of reports of cohort studies, case series, and 1 pilot randomized trial, so evidence about the role of endovascular therapy of intracranial aneurysms is limited.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2002 Oct

GUIDELINE DEVELOPER(S)

American Heart Association - Professional Association
American Stroke Association - Disease Specific Society

SOURCE(S) OF FUNDING

American Heart Association

GUIDELINE COMMITTEE

Committee on Cerebrovascular Imaging of the American Heart Association Council on Cardiovascular Radiology

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Committee Members: S. Claiborne Johnston, MD, PhD, Co-Chair; Randall T. Higashida, MD, Co-Chair; Daniel L. Barrow, MD; Louis R. Caplan, MD; Jacques E. Dion, MD; George Hademenos, PhD; L. Nelson Hopkins, MD; Andrew Molyneux, MD; Robert H. Rosenwasser, MD; Fernando Vinuela, MD; Charles B. Wilson, MD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

The American Heart Association makes every effort to avoid any actual or potential conflicts of interest that may arise as a result of an outside relationship or a personal, professional, or business interest of a member of the writing panel. Specifically, all members of the writing group are required to complete and submit a Disclosure Questionnaire showing all such relationships that might be perceived as real or potential conflicts of interest.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available from the American Heart Association Web site:

- [HTML Format](#)
- [Portable Document Format \(PDF\)](#)

Print copies: Available from the American Heart Association, Public Information, 7272 Greenville Ave, Dallas, TX 75231-4596; Phone: 800-242-8721.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on September 13, 2004. The information was verified by the guideline developer on October 13, 2004.

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